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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|-----------------------------|---------------------|------------------|
| 09/762,297 | 03/26/2001 | Joan Maria Boixadera Ferrer | 202841US2PCT | 4777 |
| 22850 | 7590 | 05/06/2004 | EXAMINER | |
| OBLOK, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | PATEL, ISHWARBHAI B | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2827 | |

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|------------------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/762,297 | BOIXADERA FERRER, JOAN MARIA | |
| | Examiner | Art Unit | |
| | Ishwar (I. B.) Patel | 2827 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on ____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1 and 2 is/are pending in the application.

4a) Of the above claim(s) ____ is/are withdrawn from consideration.

5) ☐ Claim(s) ____ is/are allowed.

6) ☒ Claim(s) 1 and 2 is/are rejected.

7) ☐ Claim(s) ____ is/are objected to.

8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 26 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some * c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>March 26, 2001</u> . | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: _____. |
|--|--|

DETAILED ACTION

1. This application is a 371 of PCT/ES00/00151 filed on March 26, 2000.

Information Disclosure Statement

2. The information disclosure statement filed June 26, 2001 has been partly considered, as
 - (a) No copy an English Abstract of reference AQ, a Japanese document 62-134194, as claimed, is received.
 - (b) No English translation or figures for reference AP, German document 33 28 342.

Drawings

3. The drawings are objected to because:
 - (a) the figures are improperly cross hatched. All the parts shown in section, and only those parts, must be cross hatched. The cross hatching patterns should be selected from those shown on page 600-114/115 of the MPEP based on the material of the part. See also 37 CFR 1.84(h)(3) and MPEP § 608.02.
 - (b) Reference characters a1 and a2 are used in specification in describing figure 4, but are not shown in the figure.

(c) The invention is about the widening of the contact areas arranged on printed circuits, however, no width of the conductive track is shown in the plan view. It is suggested to add a plan view showing the width of the track in contact area to better understand the invention.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following:

(l) The layout of the specification is not meeting the general guidelines described in the MPEP.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or

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REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a).
"Microfiche Appendices" were accepted by the Office until March 1, 2001.)

(e) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37
CFR 1.97 and 1.98.

(f) BRIEF SUMMARY OF THE INVENTION.

(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(h) DETAILED DESCRIPTION OF THE INVENTION.

(i) CLAIM OR CLAIMS (commencing on a separate sheet).

(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A
"Sequence Listing" is required on paper if the application discloses a
nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if
the required "Sequence Listing" is not submitted as an electronic
document on compact disc).

(II) Further, there are various other discrepancies in the specification as detailed
below. It seems the specification is a direct translation of a foreign language and also
the same reference numerals are used for different phrases / elements.

Applicant's cooperation is requested in rectifying all the discrepancies.

(a) The description of figure 4, page 3, line 7-11 is unclear. As described
"conducting part (12) has been widened by (a2-a1), with a purpose that when it is
desired to incorporate an electronic component (13) the adhesive (14) does not spill
over the conductive part". However, reference numeral a1 and a2 are not shown in the
figure and further the adhesive is already disposed on the conductive part, so where is
the question of spilling on conductive part?

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(b) The description of figure 5, page 3, line 12-11, is unclear. Line 14/15 describes "the copper track (12) at a thickness greater than 105 microns and height h2. Does it mean thickness and height are two different characteristics of the track?

(c) In the description, it is the thickness of the copper track, less than 105 micron, as described in figure 1 and 2, and more than 105 micron, as described in figure 3-5. However, in the abstract it is described as "conductor strips having a copper width over 105 microns" line 1-2 and "compensating for the height difference if the copper surface is bigger than 105 microns", line 4-5. The nomenclature should be used consistently to avoid confusion.

(d) In the specification reference numeral "a1" and "a2" are interchangeably used for the width of the track and width of the component, page 2, line 1-10 and pag3, line 7-11.

(e) Reference numeral "12" is interchangeably used for conductive track, conductive material track, page 2, line 23/24, copper track, page 2, line 27, page 2, line 33, conducting part, page 3, line 8, layer, page 3, line 26, conducting layer, page 4, line 7.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1 and 2 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As disclosed in the first paragraph of the specification, the invention refers to a widening of the contact areas arranged on printed circuits and their conducting zone. However, the thickness of the conductive tracks and width of the conductive tracks are used interchangeably at various places in the specification it is not clear as to what the applicant is disclosing. One example is the abstract of the specification, which is describing contradictory details. In the description, it is the thickness of the copper track, less than 105 micron, as described in figure 1 and 2, and more than 105 micron, as described in figure 3-5. However, in the abstract it is described as "conductor strips having a copper width over 105 microns" line 1-2 and "compensating for the height difference if the copper surface is bigger than 105 microns", line 4-5. Also, for widening of the contact area, the conductive track is referred to in the specification, however, it is not clear whether the contact track includes the pads or it is the pad area that is increased.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1 and 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Both the Claims, 1 and 2, have various deficiencies as described below:

Regarding claim 1:

(a) The phrase "Design for electronic component patterns over 400 micron layers on printed circuits", line 1 and 2, is unclear. This is the application for utility patent and utility patents are not issued for designing. Examiner assumed claim to mean a circuit board. Also, "patterns over 400 micron layers on printed circuits", is unclear. Does this mean the wires are thicker than 400 micron? The specification does not disclose patterns over 400 microns.

(b) "The conducting material tracks", line 3/4, lacks antecedent basis.

(d) "Drawn and constructed" is unclear. Does "drawn" means formed?

(e) "Depositing between said tracks" is a confusing method limitation because the claim is describing what the system consists of. The system does not consist of a method step.

(f) The phrase "with the purpose of interlocking to electronic components as a preliminary step, so that once they are adhered to the conducting material track, they receive the corresponding soldering material in a wave soldering process" is unclear. Is this a method step? If so, what is the structural manifestation? Examiner is unclear of the structure these functional phrases impart to the claimed circuit board. Furthermore, it is unclear as to what is being referenced by the term "they"?

(g) The phrase "the layer of conducting material track will be h_2 greater than h_1 and the corresponding pads width a_1 will have a greater width a_2 " is incomprehensible. Without corresponding details of track and pads, it is completely unclear and confusing, what structure is claimed and what is the correlation between the h_1 , h_2 , assuming to the thickness of the track and width of the corresponding pads.

(h) The term "Corresponding pads" is unclear. What are pads? Does this refer to pads on the track or pads on the component?

(i) "Conducting material tracks...., such as copper, aluminum or similar", line 3-5, and "the layer of conducting material or copper track", line 11, is indefinite. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 1 recites the broad recitation "conducting material track", and the claim

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also recites "material such as copper, aluminum or similar", which is the narrower statement of the range/limitation.

Claim 2 depends upon claim 1, and inherits all the above described deficiency and further:

(a) The phrase "electronic components will have a width a_2 when the copper conducting layers have a height h_2 " is incomprehensive. It does not clearly set forth the metes and bounds of the claim as to the width and height of the conductive layers. Also the use of phrase "when" makes the claim indefinite, as it is not clear whether the limitation is positively claimed or not.

(b) "the conducting parts", line 3, lacks antecedent basis.

(c) "of electronic components", line 4 is unclear as no components positively claimed in claim 1.

For the examination purpose, the examiner assumes the claims 1 is directed to a printed circuit board with a conductive track having pads formed on the surface of the board, an electronic component mounted on the board, an adhesive disposed on the board attaching the component to the board, and electrodes of the component soldered to the pads on the tracks and claim 2 further claims wider pads for soldering the component.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohsawa, US Patent No. 4,339,785.

Regarding claim 1, Ohsawa discloses a printed circuit board (element 6, figure 1) with a conductive track (element 7 and 8, figure 1 and 2) having pads (element 7a and 7b, figure 1 and 1) formed on the surface of the board,

an electronic component (element 5, figure 1) mounted on the board,

an adhesive (element 13, figure 1) disposed on the board attaching the component to the board, and

electrodes (element 2 and 3, figure 1) of the component soldered (solder 14, 15, figure 1) to the pads on the tracks.

Regarding claim 2, Ohsawa further discloses the wider pads (element 7a-8a, figure 2).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Todd et al., discloses a surface mount device mounted on a circuit board with adhesive disclosed on the board holding the device with board and facilitating subsequent soldering operation, see figure 1.

Ohmura et al., discloses a conductive structure having a thickness of 15 to 200 μm for the provision of low-resistance conductor, column 2, line 1-15.

Nagasaka et al., discloses a hybrid circuit with a total conductor thickness of about 125 μm (figure 1, layer 23 about 40 μm and layer 21 about 85 μm , column 3, line 55-68), to improve an electric conductivity, a thermal conductivity, column 1, line 23-30.

Takayama et al., discloses a film carrier with conductive circuit having thickness from 1 to 200 μm , column 5, line 1-3.

Fernandez discloses a circuit board with a conductive layer having a thickness of about 800 μm , column 2, line 29-33.

Hiroshi Ebisawa discloses wiring board with sacrificed pattern (10) between soldering pads (6) and apply adhesive agent (8) to the sacrificed pattern to bond the parts (4).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272 1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



I B Patel
Examiner
GAU: 2827
April 29, 2004